
August 2002

EPA SUPERFUND UPDATE PROPOSED PLAN FACT SHEET



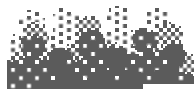
CLEANUP OF CHATTANOOGA CREEK

**TENNESSEE PRODUCTS SUPERFUND SITE
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE**

REGION 4

EPA COMPLETES INVESTIGATION OF CHATTANOOGA CREEK, RECOMMENDS FINAL REMEDY FOR THE SITE

The U.S. Environmental Protection Agency (EPA), in partnership with the Tennessee Department of Environment and Conservation (TDEC), have completed the Federal Superfund investigation of Chattanooga Creek, also known as the Tennessee Products Superfund Site. The site is located in the Alton Park and Piney Woods neighborhood in south Chattanooga, Hamilton County, Tennessee. This Fact Sheet will briefly describe the results of the Remedial Investigation (RI) and Feasibility Study (including a summary of all the cleanup alternatives evaluated), and will present the proposed final decision concerning the cleanup of the site.



PUBLIC MEETING

August 22, 2002

7:00 p.m.

Calvin Donaldson Elementary School

The meeting will provide an opportunity for the community to discuss the investigation, the cleanup alternatives considered, and the preferred remedy with EPA and State representatives. The public is encouraged to review and comment on the cleanup alternatives considered and on the proposed remedy presented in this plan. **EPA is accepting public comments from August 12 to September 10, 2002.**

EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This proposed plan summarizes information that can be found in greater detail in the RI/FS report and other documents contained in the Administrative Record file for the site.

Inside you will find:

**Background Information
Summary of the Site Investigation
Summary of the Feasibility Study
The site's health risks
EPA's proposed cleanup remedy**

EPA will host a public meeting on August 22, 2002 at the Calvin Donaldson Elementary School at 7:00 p.m.

Site Accomplishments

The initial cleanup of coal-tar in Chattanooga Creek was completed in November 1998 (under EPA's removal authority). The cleanup which began in June 1997, by the EPA, was the first phase of the cleanup plan for the Chattanooga Creek.

This first phase of the cleanup consisted of the following: 165 cubic yards were removed from a pit of coal-tar constituents, located just north of Hamill Road near Wilson Road; 250 cubic yards of coal-tar constituents were removed from a disposal pit located in the creek's flood plain; two waste mounds of coal-tar constituents located behind the former plant site and next to the railroad tracks (near Wilson Road) were removed -- about 2,000 cubic yards of material; and, 4,236 linear feet of Chattanooga Creek were cleaned up. A total of 25,350 cubic yards of waste was excavated from the site. The wastes were recycled at a municipal electric power plant in Baldwin, Illinois, and at a cement manufacturing plant in South Carolina. These facilities used the coal-tar constituent wastes for fuel in their processes.

Along with the contaminated sediment, all of the discarded debris found in the creek was removed. Specifically, hundreds of car and truck tires were taken out. The tires were sent to a Chattanooga facility which burned the tires for fuel. The materials which could not be recycled were sent to a local landfill. The cost of the first phase of the cleanup was approximately \$12 million (actual physical cost of the cleanup).

Site Background and History

The Tennessee Products Superfund Site is located in the Alton Park/Piney Woods neighborhood in south Chattanooga, Tennessee. The Site consists of two distinct source areas of contamination:

1. Certain areas in the flood plain containing uncontrolled coal-tar constituents; and
2. Sediments along approximately 2.5 miles of Chattanooga Creek that were contaminated with coal-tar constituents.

The approximate locations of these areas are shown on Figure 1 (attached).

Contamination in the creek was caused, in part, by the former coal carbonization facility (coke plant), located at 4800 Central Avenue. This facility was operated from approximately 1918 until 1987. Various companies operated the facility throughout its history. The Tennessee Products Corporation operated it the longest, from 1926 to 1964.

In 1994, all of the buildings on the plant property, except for the foundations and some underground tanks, were removed. However, several areas contaminated with coal-tar constituents still exist on the plant property.

The 24 acre property was once listed on the National Priorities List (NPL) for Superfund sites, as a part of the Tennessee Products Site listing. However, in 1996, the Mead Corporation, a Potentially Responsible Party (PRP) which owned the facility from 1964 to 1974, challenged EPA's decision to include the plant property on the NPL, and was successful in Federal Court of removing the plant property from the list. The plant property is now being addressed by Mead under Tennessee Department of Environment and Conservation (TDEC) oversight. The remainder of the site, which includes Chattanooga Creek, stayed on the NPL.

Waste water from the facility was routinely discharged into Chattanooga Creek through an old pipe and through a ditch that empties into the creek. EPA believes the discharges from the facility began at the start of plant operations and continued into the late

70's. The discharges were oily wastewater containing particles of coal-tar. Two other sources of contamination at the site are: a coal-tar processing plant which operated next to the former coke plant until 1976; and the chemical manufacturing plant, currently owned by Velsicol Chemical.

Throughout the 1980's and early 1990's EPA and TDEC studied and monitored the water quality in Chattanooga Creek. In the summer 1992 EPA concluded a formal study of the contaminated sediments in the Creek. The results of that study are outlined in a report titled *Chattanooga Creek Sediment Profile Study*. High levels of coal-tar contamination were detected in most of the creek's sediment.

Based on the results of the sediment study and other information known about the site, the Agency of Toxic Substances and Disease Registry (ATSDR) issued a Health Advisory for the site. They identified health hazards associated with direct contact of sediments contaminated with coal-tar. In response to this finding, ATSDR conducted health education classes about the creek at local schools; a health assessment was performed to identify potential waste exposure to the community; and many information meetings and written updates were provided to the community.

In 1993, EPA placed a fence between the creek and the Alton Park Middle School to prevent children from playing in the creek.

EPA used the ATSDR Health Advisory to place the site on the National Priorities List (NPL) in September of 1995. The Remedial Investigation and Feasibility Study began shortly before the formal listing of the site.

In June 1997, EPA began removing the contaminated sediment from the most accessible section of the creek, specifically, between Hamill Road and the section of creek next to the Alton Park Middle School (north of 38th Street). This cleanup action is described in the previous Site Accomplishments section of this Fact Sheet.

The cleanup strategy established for the site was to remove the contamination in the creek which presented the highest risk to the community first, then remove the rest of the contamination through a longer-term cleanup action. As mentioned before, the first phase of the cleanup was accomplished by the 1997-1998 removal described earlier. The second phase of the cleanup will remove all of the contaminated sediment remaining from those areas of the creek which are less accessible, and which present a lesser exposure risk to the community. The second phase of the cleanup strategy is the subject of this Fact Sheet and proposed plan.

Remedial Investigation and Feasibility Study

The purpose of a remedial investigation is to determine the nature and extent of contamination at the site and determine the threat to public health and the environment from a release or potential release of hazardous substances from the site. The remedial investigation included reviewing historical information, and collecting samples from the air, water, soil, sediment and waste. The remedial investigation focused on the plant site, although a number of samples were collected from areas surrounding the creek and the plant site. EPA decided not to collect many creek sediment samples for this investigation because EPA conducted a more comprehensive study of the creek in 1992 (*Chattanooga Creek Sediment Profile Study*).

The purpose of the Feasibility Study was to determine the best cleanup remedy. For this site, EPA conducted a Feasibility Study focused on cleanup alternatives for the creek sediment only, since this is the largest waste area requiring remediation. Other much smaller areas in the flood plain that are contaminated with coal-tar and its related chemicals will be addressed along with the creek sediments.

The former plant property was not considered in the development of the cleanup strategy because the property was removed from the NPL listing by the Federal Courts. Therefore, no remedy will be proposed for the plant property as part of this remedy selection process. However, it will be addressed through the State Superfund authority, and the State is currently coordinating a cleanup with the Mead Corporation.

Site Characteristics and Study Results

Chattanooga Creek is located in the Tennessee River Basin, and occupies the northern portion of the Chattanooga Valley between Lookout Mountain and Missionary Ridge. The creek originates from the slopes of Lookout Mountain, flows approximately 26 miles northward into Tennessee and eventually into the Tennessee River. The creek has a watershed of nearly 75 square miles, of which approximately 22% is in Tennessee.

The portion of the creek that is known to contain coal-tar contaminated sediment is a segment 2.5 miles long, beginning from approximately Hamill Road and ending at Dobbs Branch (see Figure 1, attached).

Soil, sediment, groundwater and air samples were collected from the site and surrounding targeted areas. Some of the targeted areas included: the Coke Plant site; Chattanooga Creek tar deposit in the flood plain; Schwerman Trucking site; Chattanooga Creek sediments and groundwater; Residential areas; the Early Childhood Family Education Center playground; and the Northeast and Northwest tributary areas. Please note that the Remedial Investigation covered many areas, including areas that were cleaned up during the 1998 removal action. The focus of the proposed Phase 2 clean up are areas containing the most contamination.

A summary of the Remedial Investigation results relevant to the areas containing contamination associated with the

Tennessee Products Site is presented below:

Air: Air samples were collected to find out if any contaminants from the site were in the air. A few samples showed the presence of the type of contaminants found in the creek, but the levels did not present an unacceptable risk. Also, during the first phase of the cleanup, while the contaminated creek sediments were being removed, EPA monitored the air continuously and did not detect any unsafe levels of contaminants in the air.

Groundwater: Shallow groundwater samples were collected near the creek to determine if contaminants from the creek were being released into the groundwater. Deeper groundwater samples were also collected in certain areas, but no contaminants were detected. Results show that a few of the organic chemicals found in the sediment are present in the shallow groundwater near the creek. The following chemicals were detected at very low concentrations:

Volatile Organics: Chlorobenzene

Semi-Volatile Organics: 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Naphthalene, Acenaphthalene, Phenanthrene, and 2-Methylnaphthalene

Pesticides: Alpha-BHC, Beta-BHC, Gamma-BHC and Dieldrin

Metals: Iron (found to be above background concentrations)

The groundwater contamination found to be associated with the creek is limited to a narrow band along the creek. During most of the year groundwater flows into the creek, preventing the chemicals in the creek from escaping. Only during high flood events does water flow from the creek into the groundwater.

Soil: Soil samples were collected from the Northeast Tributary area and the Chattanooga Creek tar deposit located in the flood plain. Results from each area are as follows:

Northeast Tributary Area: soil samples collected from the banks of the Northeast Tributary contained some Volatile Organic compounds (benzene, toluene, ethylbenzene and xylenes); high concentrations of Polynuclear Aromatic Hydrocarbons (PAHs); and low concentrations of pesticides. The PAH compounds are the type of chemicals associated with the creek and plant site. There is no apparent pattern in the distribution of the chemicals in the soil. It is believed that the soil next to the Northeast Tributary is material that was removed from the tributary channel and dumped along its bank. It has been documented that the wastewater discharged from the rear of the former coke plant flowed into the Northeast Tributary and into Chattanooga Creek.

Chattanooga Creek Tar Deposit: This is an area in the flood plain of the creek that contained a large amount of coal-tar constituents in a pit approximately 90 feet square. Prior to Chattanooga Creek being straightened under 38th Street, it meandered along a path next to the pit. EPA collected soil samples from the area surrounding this pit to determine if chemicals from the pit were spread out. A total of 18 soil samples were taken from locations which were approximately 200 feet apart. Results show that PAH contamination is present at varying concentrations and in no distinguishable pattern. Also found were some metals that were above background concentrations in at least one sample. These metals were: cadmium, chromium, nickel, antimony, zinc, mercury and sodium.

Sediment: EPA conducted a comprehensive sediment study in Chattanooga Creek which identified significant PAH (coal-tar constituents) contamination. Most of the contamination is between Hamill Road and Dobbs Branch (see Figure 1 attached)

Summary of Site Risks

As part of the RI/FS, EPA conducted a baseline risk assessment to determine the current and future effects of contaminants on human health and the environment. Risk assessment is a process which makes many assumptions about how people and the environment are exposed to the site's contaminants. Sampling results are used with other information to determine the risks caused by the contaminants of concern based on conservative exposure assumptions.

Contaminants of Concern

The main contaminants of concern (COCs) being addressed by this remedy are polynuclear aromatic hydrocarbons (PAHs). PAHs present in the creek bed are at concentrations that would present an unacceptable risk should chronic human exposure occur. In the current specific environmental setting, PAHs at the surface and at depth in certain sediments present significant risks, according to the human health and ecological risk assessments.

Human Health Risks

The human health risks for this site were estimated based on an assumption that people would visit the site currently and in the future, and on an assumption that the site would be developed for commercial use and future site workers would be exposed to contamination in the creek. The exposure pathways examined in the Risk Assessment were:

- ingestion of soil
- dermal contact with soil
- ingestion of sediment (in Chattanooga Creek)
- dermal contact with sediment (in Chattanooga Creek)
- ingestion of groundwater
- inhalation of volatile organic compounds (VOCs) released from ground water, and
- inhalation of dust.

The risks associated with these exposure scenarios are calculated for cancer causing chemicals (carcinogenic risks) and for other chemicals which do not cause cancer, but that have the potential to cause other ill effects (non-carcinogenic risks). The estimated risks for the areas investigated linked to Chattanooga Creek are summarized below and in Table 1 and Table 2 attached.

Groundwater near the creek: The excess lifetime cancer risk estimated for ingestion of contaminated groundwater near the creek is within EPA's acceptable target range for adults and children. Ingestion of groundwater **does not** pose an unacceptable risk.

Chattanooga Creek Tar Deposit: The excess lifetime cancer risk estimated for exposure to contaminated soil in the area of the tar deposit is within EPA's acceptable risk range. Exposure to soil in this area **does not** pose an unacceptable risk. This risk assessment was performed on the soil surrounding the tar pit. All of the heavily contaminated material was removed during the 1997 removal action.

Northeast Tributary Area: The excess lifetime cancer risk estimated for exposure to contaminated soil next to the Northeast Tributary is above EPA's acceptable target range. Exposure to contaminated soil near the Northeast Tributary **does** present an unacceptable risk to adults and children, mainly from direct contact and inadvertent ingestion.

Chattanooga Creek Sediment: The excess lifetime cancer risk is estimated to be above EPA's acceptable risk range for adults and children who visit the creek and who are exposed to contaminated sediment (between 38th Street and Dobbs Branch). Inadvertent ingestion of contaminated sediment and direct dermal contact **does** present an unacceptable risk. The creek segment between Hamill Road and 38th Street was cleaned up during the 1997 removal action.

Ecological Risks

A complete ecological assessment was performed as part of the RI/FS. EPA conducted flood plain soil, surface water, sediment, and freshwater clam tissue sampling at the site. Sediment and soil toxicity tests were also conducted using samples of sediment contaminated with coal-tar constituents collected from the creek. An earthworm bioaccumulation study was conducted using Site soil samples.

The ecological risk assessment generally concluded that plants and animals in the flood plain of the creek have not been adversely impacted. However, the ecological assessment also indicates that aquatic life in Chattanooga Creek are at risk from exposure to contaminated sediment. The sediment toxicity tests show that PAH contamination in the sediment significantly affects the survival, growth and reproduction of aquatic life in the creek.

Remedial Action Objectives

Based on the remedial investigation and the risk assessment, EPA determined that the objectives of the remedy will be to:

- prevent human exposure to contaminated soil along the Northeast Tributary and contaminated sediment in Chattanooga Creek; and,
- eliminate risks to aquatic life in Chattanooga Creek from exposure to contaminated sediment.

Scope and Role of the Remedy

As mentioned before, the overall cleanup strategy for the site was first, to address the contaminated sediment in Chattanooga Creek that was easily accessible and posed the highest health risk to people. This was accomplished through the 1997-98 sediment removal action. The second phase of the cleanup is to address the remaining contaminated portion of the creek, and the Northeast Tributary Area.

The law requires EPA to use treatment to address the principal threats posed by a site (NCP Section 300.430(a)(1)(iii)(A)). The principal threat is a source waste material at a site that is considered to be highly toxic or highly mobile, which would present a significant threat to human health or the environment should exposure occur. The coal-tar/PAH contaminated sediment at this site does not meet the definition of “principal threat,” and therefore, the requirement to treat the principal threat does not apply.

Coal-tar/PAH contamination from the site and the risks associated with its exposure will be addressed through the proposed cleanup action presented in this plan.

Summary of Remedial Alternatives

Six remedial action alternatives were considered for evaluation in the Focused Feasibility Study Report. They are described as follows:

Alternative 1: No Action. The law requires that the “no action” alternative be evaluated generally to establish a baseline for comparison. Under this alternative EPA would take no action at the site to prevent exposure to the contaminated sediment and soil.

Alternative 2: Re-routing the Chattanooga Creek and encapsulating (solidifying) the coal-tar constituents and contaminated sediment left behind;

Alternative 3: Creating an on-site landfill for the contaminated material;

Alternative 4: On-site Thermal Desorption – heating the material at low temperatures to evaporate the chemicals;

Alternative 5: On-site incineration – burn the contaminated material at the site to destroy the chemicals;

Alternative 6: Off-site disposal and recycling – removing the contaminated material and sending it to a recycling facility.

Evaluation of Alternatives

The six remedial alternatives, including the no-action alternative were evaluated using nine criteria established by EPA. The nine criteria are defined in a box on the next page. A summary of the evaluation follows:

Overall Protection of Public Health and

Environment: All the remedies meet this criteria, except Alternative 2, which keeps the contaminated material on-site and may potentially pose a future risk if the treatment fails long-term. The no-action alternative does not meet this criteria.

Compliance with State and Federal

Requirements: Alternative 2 and 3 would not comply with State and Federal regulations, unless the contaminated material is treated first. All the other Alternatives meet this criteria, except the no-action alternative.

Short-term Effectiveness: All the alternatives considered (except the no-action alternative) will involve engineering controls to protect workers and residents during construction. It is not expected that any of these remedies will pose short-term health or environmental risks. However, the no-action alternative will continue to pose an unacceptable risk without treatment.

Long-term Effectiveness: Alternatives 4, 5, and 6 meets this standard because the waste is removed or permanently treated. Alternatives 2 and 3 do not provide the same level of protection because of uncertainties with long-term reliability of the remedy. The no-action alternative does not meet this criteria.

Nine Criteria for Evaluating Remedial Alternatives

1. **Overall Protection of Public Health and Environment:** Degree to which the remedy eliminates, reduces, or controls health and environmental threats through treatment, engineering methods or institutional controls.
2. **Compliance with State and Federal Requirements:** Degree to which each alternative meets environmental regulations determined to be applicable or relevant and appropriate.
3. **Short-term Effectiveness:** Length of construction period and the risks posed to workers and nearby residents during construction.
4. **Long-term Effectiveness:** Ability of a remedy to maintain protection of health and environment after the remedy is completed.
5. **Reduction of Mobility, Toxicity and Volume:** Degree to which the remedy reduces: the ability of contaminants to move through the environment; harmful nature of the contaminants; and, amount of contamination removed.
6. **Implementability:** Refers to the technical feasibility and administrative ease of implementing a remedy.
7. **Cost:** Benefits of a remedy are weighed against its cost.
8. **State Acceptance:** Consideration of the State's comments and acceptance of the preferred remedy.
9. **Community Acceptance:** Consideration of the public's comments and acceptance of the preferred remedy.

Cost: The estimated costs to implement each remedy is as follows:

Alternative 1:	\$0
Alternative 2:	\$6,707,900
Alternative 3:	\$6,321,600 (without pre-treatment)
Alternative 4:	\$8,662,200 to \$12,574,500 (depending on whether the thermal unit is direct-fired or indirect-fired)
Alternative 5:	\$12,151,000
Alternative 6:	\$7,479,400

State Acceptance: TDEC has assisted EPA in reviewing all technical reports produced during this investigation and has evaluated the remedial alternatives considered for this site. TDEC agrees with the proposed remedy for the site.

Community Acceptance: Community acceptance of the preferred alternative will be evaluated during the public comment period. Comments received from the community will be addressed in the Responsiveness Summary section of the Record of Decision Document.

Summary of the Preferred Alternative

Based on the results of the Remedial Investigation and Feasibility Study, EPA has determined that excavation and off-site disposal and recycling (Alternative 6) is the preferred alternative for the site. The preferred alternative provides the best balance of tradeoffs among the nine evaluation criteria, and meets the remedial goals by preventing future human contact with the coal-tar constituents and contaminated sediment in Chattanooga Creek. This remedy was used during the first phase of the cleanup and was proven to be effective and efficient. Also, this was also the only alternative considered to completely remove the waste material from the site.

The preferred alternative will involve excavating the coal-tar constituent waste and contaminated sediment from the location where the Phase 1

Reduction of Mobility, Toxicity and Volume:

Alternatives 2, 3, 4, and 5 reduce the mobility and toxicity of the waste, but no significant volume reduction is achieved. Alternative 6 meets this criteria completely by eliminating the waste. The no-action alternative does not meet this criteria.

Implementability: All the alternatives can be reasonably implemented. This criteria is not a consideration for the no-action alternative.

Cleanup ended to the confluence of Dobbs Branch. During the Phase 1 Cleanup the following circumstances were encountered:

- all of the contaminated sediment was removed because bedrock was near the bottom of the creek bed and all of the sediment was completely contaminated; and,
- the coal-tar contamination is easily identified by visual inspection.

These conditions are expected to be encountered in the remaining portion of the creek. Therefore, it is unnecessary to establish cleanup standards for the cleanup in the creek, since all of the contaminated sediment is proposed to be removed.

The law requires that if a remedy is selected that results in contamination remaining at the site above levels that allow for unrestricted use and unrestricted exposure, then EPA shall evaluate the remedy every five years to determine if it continues to protect human health and the environment. If the preferred alternative is selected then the five-year review will not be required.

COMMUNITY PARTICIPATION

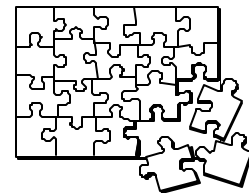
The Comprehensive Environmental Response, Compensation and Liability Act (commonly referred to as CERCLA or the "Superfund Law") requires that EPA publish this Proposed Plan (Section 117(a)). Other public involvement activities undertaken at Superfund sites consist of: interviews with local residents and elected officials, development of a community relations plan, fact sheets, information availability sessions, public meetings, public comment periods, newspaper advertisements, site visits, Technical Assistance Grants, and any other activities needed to keep the community informed about the site and involved in the clean-up process.

To promote public involvement at the Tennessee Products site, EPA is conducting a **30-day public**

comment period from August 12 to September 10, 2002. Public input on the remedial investigation, on all the alternatives considered, and on the preferred alternative is an important contribution to the remedy selection process. During this comment period, the public is invited to attend a **public meeting on August 22, 2002, at the Calvin Donaldson Elementary School, located at 927 West 37th Street, Chattanooga, beginning at 7:00 p.m.** At the public meeting, EPA will answer questions, present the Remedial Investigation results and discuss the preferred alternative for the Tennessee Products Site. Because this Proposed Plan Fact Sheet provides only a summary description of the investigation and preferred alternative being considered, the public is encouraged to refer to the Administrative Record located in the information repository for a more detailed explanation.

The public is invited to review all site-related documents housed at the information repository located at the Sallie Crenshaw Bethlehem Center, 200 West 39th Street, Chattanooga (423-266-1384). The public is also invited to offer comments to EPA, either verbally at the public meeting, which will be recorded by a court reporter, or in written form during the 30-day comment period. The final remedy selected for the site could be different from the proposed remedy, described in this Proposed Plan Fact Sheet, depending upon new information or statements EPA may receive as a result of public comments.

Public input is an important piece of the puzzle!
Superfund
Please mail written comments, postmarked no later



than midnight September 10, 2002 to:

Nestor Young
Remedial Project Manager
U.S. Environmental Protection Agency, Region 4
North Site Management Branch
61 Forsyth Street, SW
Atlanta, GA 30303

If you have any questions about the site, you may contact Linda Starks, Community Involvement Coordinator, or Nestor Young, Remedial Project Manager, at the address above or phone 1-800-435-9233. EPA's final cleanup decision will be recorded in a document called a Record of Decision (ROD). Public comments received by EPA will be reviewed.

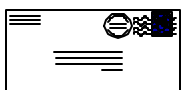
Response to comments will be included in a section of the ROD called the Responsiveness Summary. Once the ROD is signed by EPA's Regional Administrator, it will become part of the Administrative Record. The Administrative Record, located in the information repository, contains all documents used by EPA in making a final determination of the most appropriate action for the site.

The Administrative Record can be found at:

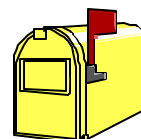
Sallie Crenshaw Bethlehem Center
200 West 39th Street
Chattanooga, TN 37409
(423-266-1384)

QUICK COMMENTS

Please let us know what you think about the Tennessee Products Superfund Site cleanup. Your input is needed so that we can be responsive to the needs of the community. Please write your comments and mail it to:



Mr. Nestor Young
North Site Management Branch
U.S. EPA, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303



Name: _____ **Phone:** _____

Address: _____

Comments: _____



U.S. Environmental Protection Agency
61 Forsyth Street, SW.
Atlanta, Georgia 30303
Region 4 Nestor Young, NSMB

Official Business
Penalty for Private Use \$300

Inside: Chattanooga Creek Proposed Clean Up Plan



Table 1:
Summary of Cancer and Non-Cancer Risks by Exposure Route
Current Use Scenario for Chattanooga Creek Sediments

Location	Exposure Route	Child Resident		Adult Resident		Lifetime Resident	
		Cancer ⁴	HI ⁵	Cancer	HI	Cancer	HI
Upper Reach ¹	Inadvertent	4E-07	0.02	3E-07	0.005	7E-07	0.01
	Ingestion	1E-07	0.004	3E-07	0.002	4E-07	0.003
	Dermal Contact						
	Total Risk	5E-07	0.03	6E-07	0.01	1E-06	0.01
Middle Reach ²	Inadvertent	3E-04	0.3	3E-04	0.1	6E-04	0.1
	Ingestion	3E-04	0.2	5E-04	0.1	7E-04	0.1
	Dermal Contact						
	Total Risk	6E-04	0.5	8E-04	0.2	1E-03	0.2
Lower Reach ³	Inadvertent	1E-06	0.01	1E-06	0.01	3E-06	0.02
	Ingestion	1E-06	0.01	2E-06	0.01	3E-06	0.01
	Dermal Contact						
	Total Risk	3E-06	0.03	4E-06	0.02	6E-06	0.03

Notes:

1. The Upper Reach is the area from Burnt Mill Bridge to the RR bridge between Hooker and Hamil Roads.
2. The Middle Reach is the area between the RR bridge (between Hooker and Hamil Roads) and Dobbs Branch.
3. The Lower Reach is the area between Dobbs Branch and the Tennessee River.
4. Cancer: The cancer risk level is a probability of getting cancer over a lifetime as a result of exposure to a chemical at the particular level of exposure. The numbers mean the following: 1E-04 is one chance in 10,000; 1E-05 is one chance in 100,000; and 1E-06 one chance in a million. EPA determined that estimated cancer risks between 1E-04 (0.0001) and 1E-06 (0.000001) is acceptable, and do not necessarily indicate that a cleanup is needed.
3. HI: The Hazard Index (HI) is the sum of the Hazard Quotient for each exposure route. An HI is calculated for non-carcinogens to assess whether health problems, other than cancer, might be associated with a Superfund site. If the number is greater than 1.0 then the chemical may pose some risk to human health.

**Table 2: Summary of Cancer and Non-cancer Risks by Exposure Route
for the Northeast Tributary Area¹**

Exposure Route	Estimated Risk					
	Current Use Scenario for a Site Visitor		Future Use Scenario for a Site Visitor (property developed for commercial use)		Future Use Scenario for a Site Worker (property developed for commercial use)	
	Cancer ²	HI ³	Cancer	HI	Cancer	HI
Inadvertent Ingestion of Soil	1E-04	0.03	1E-04	0.03	2E-03	0.2
Dermal Contact with Soil	2E-04	0.04	2E-04	0.04	1E-03	0.1
Inhalation of Dust	2E-08	0.000001	2E-08	0.000001	6E-07	0.00002
Inadvertent Ingestion of Surface Water	2E-06	0.1	2E-06	0.1	NA	NA
Dermal Contact of Surface Water	5E-04	0.5	5E-04	0.5	NA	NA
Inadvertent Ingestion of Sediment	4E-05	0.1	4E-05	0.1	NA	NA
Dermal Contact with Sediment	7E-05	0.03	7E-05	0.03	NA	NA
TOTAL RISK	9E-04	0.7	9E-04	0.7	3E-03	0.4

Notes:

1. The Northeast Tributary Area consists of a mound of contaminated soil next to the Northeast Tributary of Chattanooga Creek.
2. Cancer: The cancer risk level is a probability of getting cancer over a lifetime as a result of exposure to a chemical at the particular level of exposure. The numbers mean the following: 1E-04 is one chance in 10,000; 1E-05 is one chance in 100,000; and 1E-06 one chance in a million. EPA determined that estimated cancer risks between 1E-04 (0.0001) and 1E-06 (0.000001) is acceptable, and do not necessarily indicate that a cleanup is needed.
3. HI: The Hazard Index (HI) is the sum of the Hazard Quotients for each exposure route. An HI is calculated for non-carcinogens to assess whether health problems, other than cancer, might be associated with the site. If the number is greater than 1.0, then the chemical may pose some risk to human health.